UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P O Box 1450
Alexandria, Virginia 22313-1450
www uspto gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,677	07/28/2003	Scott D. Briles	S-100,588	4503

35068 7590 08/02/2010
LOS ALAMOS NATIONAL SECURITY, LLC
LOS ALAMOS NATIONAL LABORATORY
PPO. BOX 1663, LC/IP, MS A187
LOS ALAMOS, NM 87545

EXAMINER	
LEE, SIU M	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
08/02/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/628,677	BRILES, SCOTT D.	
	Examiner	Art Unit	
	SIU M. LEE	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4 and 6-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4 and 6-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 6/7/2010 have been fully considered but they are not persuasive.

Applicant's argument:

(a) The modulation as claimed in independent claims 1,4, 7, and 8 switches between to maximum reflectivity states, 1) an "open" (very high impedance - near infinity) and 2) a "short" (very low impedance - near zero). These two states reflect the phase of the impinging electromagnetic field in two different ways. An "open" circuit termination will cause a 180 degree phase shift in the reflected signal. A "short" circuit termination will maintain the same phase orientation as the impinging electromagnetic field. This phase changing property is used to form the binary alphabet. This form of modulation is Binary Phase shift keying (BPSK), where the phase of the return signal is switching between two anti-polar phases. BPSK modulation requires 3 dB less in power level than FSK modulation to demodulate and is also superior to OOK. BPSK modulation needs the lease signal-to-noise ratio for demodulation than the other two forms of modulations discussed in previous work.

Notably, it is not apparent how to implement BPSK modulation for a modulated reflector, and none of the cited references discuss this implementation.

(b) In addition the BPSK signal is placed upon a subcarrier. The subcarrier is created by switching the impedance between the two highly reflective states of different

phase return. Figure 3 of the present application shows the method to create the subcarrier BPSK signal using a square-wave generator and multiplying the square-wave signal against a bipolar data stream. This results in a square wave at a single frequency that may or may not change phase for M cycles. Thus M cycles of the square wave maybe in one phase and the next M cycles could be at the same or different phase. A single cycle of a square wave will cause numerous cycle of the interrogating electromagnetic wave to be reflected first in one phase and then 180 degrees opposite in phase. The phase transitions marks a single cycle of square wave.

If the phase transition does not occur at a time corresponding to one square wave cycle, then the phase of the square wave was changed and the binary symbol has changed.

The subcarrier BPSK signal allows for multiple uses of the modulated reflector technology. First a signal transmitter/receiver would be able to interrogate multiple modulated reflectors given that each modulated reflector had a different subcarrier frequency. Furthermore, by using code division multiplexing, modulated reflectors with the same subcarrier frequency can be separated.

A discussion of the differences between the cited references and the claim limitation follows:

Regarding Claim 1:

Neagley uses a voltage controlled square-wave oscillator to implement FSK modulation where the impedance is switch between reflection and absorption. Thus half the energy that is used to interrogate the modulated reflector is not reflected back, but

lost. The claimed invention uses BPSK and reflects back all the energy possible to the interrogating source.

The NPL document discusses switch between reflection and absorption. The claimed invention switches between two reflection states, in which the phases are different. BPSK modulation requires less SNR than OOK and FSK for successful demodulation. Also BPSK reflects a great amount of energy than the cited references that use absorption.

Regarding Claim 2:

Neagley uses a power splitter or similar device to control the impedance matching. While the claimed invention shows an impedance switch, which could be a PIN Diode or RF FET transistor, the power splitter performs another purpose. The use of the power splitter is to control how much power is output or reflected back. By utilizing a power splitter(s) the BPSK-modulated reflections is not altered except for the power level.

Regarding Claim 4:

Neagley uses a voltage controlled square-wave oscillator to implement FSK modulation where the impedance is switch between reflection and absorption. Thus half the energy that is used to interrogate the modulated reflector is not reflected back, but lost. The claimed invention uses BPSK and reflects back all the energy possible to the interrogating source.

NPL discusses switch between reflection and absorption. The claimed invention switches between two reflection states, in which the phases are different. BPSK

modulation requires less SNR than OOK and FSK for successful demodulation. Also BPSK reflects a great amount of energy that the other two document that use absorption.

Regarding Claim 6:

Neagley uses a power splitter or similar device to control the impedance matching. While the claimed invention shows an impedance switch, which could be a PIN Diode or RF FET transistor, the power splitter performs another purpose. The use of the power splitter is to control how much power is output or reflected back. By utilizing a power splitter(s) the BPSK-modulated reflections is not altered except for the power level.

Regarding Claim 7:

Ingram discusses modulation control and that Code Division Multiplexing can be used but does not discuss how to achieve phase modulation with a modulated reflector. The diagram, Figure 2A, in the pending application depicts a reflective and absorptive modulation for the impedance. The discussed "open" and "closed" states refer to the switch used to modulate the reflectance and not the "open" and "short" circuits of the modulated reflector impedance. A "closed" state does not mean "short circuit" impedance.

Regarding Claim 8:

Claim 8 recites that the impedance match of the modulated reflector must be switched between "open" circuit and "short" circuit. None of the cited references disclose this limitation.

Examiner's response:

In response to applicant's argument (a), that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies a BPSK modulation are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument (b), that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies a BPSK modulation and BPSK signal is placed upon a subcarrier are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to the argument for claims 1, 4, and 6, that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies the claim invention uses BPSK and reflects back all the energy possible to the interrogating source, are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to the argument for claim 2, claim 2 is cancelled.

With respect to the argument of claim 7, applicant pointed out that (a) Ingram does not discuss how to achieve phase modulation with a modulated reflector and (b) the discussed “open” and “close: states refer to the switch used to modulated reflectance and not the “open” and “short” circuit of the modulated reflector impedance, a “closed” state does not mean “short circuit” impedance.

With respect to (a), the examiner relies on Lewinter to disclose a well known step of converting a binary data stream to bipolar states of “+1” and “-1" (figure 2, column 2, lines 11-14). The invention is to modulate transmit signal with incoming radio wave by generate an impedance control signal for controlling the amount of energy reflected from an antenna. The usage of OOK, FSK, and BPSK all generate an impedance control signal with 2 states (high or low), selection of OOK, FSK, or BPSK will work on this transmission method. As the claim does not specified the benefit of using BPSK, therefore, the argument is not persuasive.

In combining, Lewinter and Ingram perform the same function as it does separately of using a smart reflection antenna system for transmitting and using the method as taught by Lewinter to convert the information wave from 91 of Ingram as shown figure 2B to convert the information wave form 91 to a bipolar states so as to generate the impedance control signal 89; thus satisfied the limitation of "converting data bit stream to bipolar states of "+1s" and "-1s".

With respect to (b), the claim limitation requires “the antenna has a high impedance in the event a “1” is to be sent a low impedance in the event a "-1"is to be sent. The examiner interprets high impedance as open circuits where the impedance is

infinity and low impedance is short circuit with zero impedance, as the claim does not define high and low, the examiner interpret high and low as infinity and zero.

With respect to the argument of claim 8, the applicant argues that “claim 8 recites that the impedance match of the modulated reflector must be switched between “open” circuit and “short" circuit" and none of the cited references disclose this information; the examiner cannot find the cited limitation in claim 8, therefore the argument is not persuasive. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Based on the above response, the applicant's argument is not persuasive and the rejection is maintained.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neagley et al. (US 2002/0128052 A1, hereinafter Neagley) in view of NPL (Potentials, IEEE Volume 18, Issue 4, Oct-Nov 1999, pages 29-33).

(1) Regarding claim 1:

Neagley discloses a method comprising:

generating a data bit stream (digital input 18in figure 1, paragraph 0040);

coding said data bit stream to increase its bit rate (provide the digital input signal 18 to voltage controlled squarewave oscillator 16, paragraph 0040);

providing said modified phase modulated reflectance data bit stream to a switch (impedance switch 14 in figure 1) that selectively connects an antenna to at least one power splitter, wherein the at least one power splitter selectively connects at least one matched load to the antenna, and wherein the matched load is also connected to the ground (the impedance switch 14 can generate an impedance for open circuit or a matched load and connected to the antenna ground as shown in figure 1 (paragraph 0041), therefore, when the impedance switch is with an open circuit, the antenna reflect all of the received radio frequency signal (all energy re-radiated) and when the impedance is a matched load connected to the antenna ground (ANT GND), no energy is re-radiated from the antenna 10 because the received RF signal energy is split between the impedance of the antenna and the matched load, therefore, it provide a power splitting function; as a result, the impedance switch provide the function of selective connects an antenna to at least one power splitter, wherein the at least one power splitter selectively connects at least one matched load to the antenna, and wherein the matched load is also connected to the ground).

Neagley fails to disclose when the antenna has high impedance in the event a "1" is to be sent low impedance in the event a "0" is to be sent.

However, NPL discloses connects an antenna to an infinite impedance in the event a "1" is to be sent (maximum reflection), or connects said antenna to ground in the event a "0" is to be sent (maximum absorption) (page 31, column 3, lines 51-60).

It is desirable to connects an antenna to an infinite impedance in the event a "1" is to be sent, or connects said antenna to ground in the event a "0" is to be sent as taught by the NPL because it will maximize the signal to noise ratio. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the method of the NPL in the system of Ingram to improve the SNR ratio.

(2) Regarding claim 2:

Neagley discloses a single impedance switch, therefore, said at least one power splitter is one power splitter.

(3) Regarding claim 4:

Neagley discloses an apparatus comprising:

a modulated reflectance unit generating a phase-modulated data bit stream at a pre-selected rate (digital input 18 in figure 1 comprises microphone 28, analog to digital converter 30, and speech compression electronics 32, and error control coding 34 as shown in figure 2; as it is an digital signal, it is of a pre-selected rate);

a coder receiving a data bit stream for having a pre-selected rate wherein said code modifies said data bit stream by increasing said pre-selected rate (voltage controlled squarewave oscillator 16 an intermediate frequency that switched sufficiently rapidly for the input-data rate, paragraph 0040); and

a switch (impedance switch 14 in figure 1) receiving said data bit stream (impedance switch 14 receives the output of the voltage controlled squarewave oscillator 16 as shown in figure 1) and connecting an antenna to at least one power splitter, wherein the at least one power splitter selectively connects at least one matched load to the antenna, and wherein the matched load is also connected to the ground (the impedance switch 14 can generate an impedance for open circuit or a matched load and connected to the antenna ground as shown in figure 1 (paragraph 0041), therefore, when the impedance switch is with an open circuit, the antenna reflect all of the received radio frequency signal (all energy re-radiated) and when the impedance is a matched load connected to the antenna ground (ANT GND), no energy is re-radiated from the antenna 10 because the received RF signal energy is split between the impedance of the antenna and the matched load, therefore, it provide a power splitting function; as a result, the impedance switch provide the function of selective connects an antenna to at least one power splitter, wherein the at least one power splitter selectively connects at least one matched load to the antenna, and wherein the matched load is also connected to the ground)

Neagley fails to disclose the antenna has high impedance in the event a "1" is to be sent low impedance in the event a "0" is to be sent.

However, NPL discloses connects an antenna to an infinite impedance in the event a "1" is to be sent (maximum reflection), or connects said antenna to ground in the event a "0" is to be sent (maximum absorption) (page 31, column 3, lines 51-60).

It is desirable to connects an antenna to an infinite impedance in the event a "1" is to be sent, or connects said antenna to ground in the event a "0" is to be sent as taught by the NPL because it will maximize the signal to noise ratio. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the method of the NPL in the system of Ingram to improve the SNR ratio.

(4) Regarding claim 6:

Neagley further discloses a single impedance switch, therefore, said at least one power splitter is one power splitter.

4. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingram (US 6,509,836 B1) in view of NPL (Potentials, IEEE Volume 18, Issue 4, Oct-Nov 1999, pages 29-33), Lewinter (US 4,499,594) and Neagley et al. (US 2002/0128052 A1, hereinafter Neagley).

(1) Regarding claim 7:

Ingram discloses a method comprising:

generating data bit stream (information wave form 91 in figure 2B);

generating square waves (periodic square wave 90 is being generated as shown in figure 2B);

multiplying said square waves with said data bit stream (the multiplier in figure 2B multiplies the information wave form 91 and square wave 90 to form impedance control signal 89 as shown in figure 2B)

providing said modified coded data bit stream to a switch (switch 110 in figure 2A) that connects an antenna (tag antenna 88 in figure 2A) to an open stage in the event a "1" is to be sent, or connects said antenna to an close stage in the event a "0" is to be sent (open and close stage according to an impedance control signal 89, open is being interpreted as an indefinite impedance and open is being interpreted as short to the ground) (column 1, lines 56-65).

Ingram fails to disclose (a) converting data bit stream to bipolar states of "+1s" and "-1s" before multiplying with the square wave; (b) the antenna has a high impedance in the event a "1" is to be sent a low impedance in the event a "0" is to be sent; and (c) a switch receiving said multiplication for connecting an antenna to at least one power splitter, wherein the at least one power splitter selectively connects at least one matched load to the antenna, and wherein the matched load is also connected to the ground.

With respect to (a), Lewinter discloses a digital to analog convert that can convert a binary data stream to bipolar states of “+1s” and “-1s” (figure 2, column 2, lines 11-14).

It is desirable to convert a binary data stream to bipolar states of “+1s” and “-1s” because it reduces the potential for error (column 3, lines 9-11). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Lewinter in the system of Ingram and NPL to improve the accuracy of the system.

With respect to (b) NPL discloses connects an antenna to an infinite impedance in the event a "1" is to be sent (maximum reflection), or connects said antenna to ground in the event a "0" is to be sent (maximum absorption) (page 31, column 3, lines 51-60).

It is desirable to connects an antenna to an infinite impedance in the event a "1" is to be sent, or connects said antenna to ground in the event a "0" is to be sent as taught by the NPL because it will maximize the signal to noise ratio. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the method of the NPL in the system of Ingram to improve the SNR ratio.

With respect to (c), in the same field of endeavor, Neagley discloses an impedance switch 14 that receives signal from voltage controlled squarewave oscillator and generates an impedance for open circuit or a matched load and connected to the antenna ground as shown in figure 1 (paragraph 0041), therefore, when the impedance switch is with an open circuit, the antenna reflect all of the received radio frequency signal (all energy re-radiated) and when the impedance is a matched load connected to the antenna ground (ANT GND), no energy is re-radiated from the antenna 10 because the received RF signal energy is split between the impedance of the antenna and the matched load, therefore, it provide a power splitting function; as a result, the impedance switch provide the function of selective connects an antenna to at least one power splitter, wherein the at least one power splitter selectively connects at least one matched load to the antenna, and wherein the matched load is also connected to the ground.

It is desirable to have a switch receiving said multiplication for connecting an antenna to at least one power splitter, wherein the at least one power splitter selectively connects at least one matched load to the antenna, and wherein the matched load is also connected to the ground because it provide a condition that no energy is re-radiated from the antenna and thus improve the integrity of the transmitted signal and reduce noise. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Neagley in the apparatus of Ingram, NPL and Lewinter to improve the integrity of the transmitted signal and reduce noise.

(2) Regarding claim 8:

Ingram discloses an apparatus comprising:

square wave generation means for outputting square waves (it is inherently that the periodic square wave 90 as shown in figure 2B is generated by a square wave generating means);

means for generating a phase-modulated reflectance data bit stream (the bit information waveform 91, since the information is in bits, therefore, it is either a one or a zero, thus represent a BPSK signal);

multiplication means for multiplying together said square waves and said bipolar (multiplier as shown in figure 2B multiplies the square wave and the information wave from); and

providing said modified coded data bit stream to a switch (switch 110 in figure 2A) that connects an antenna (tag antenna 88 in figure 2A) to an open stage in the event a "1" is to be sent, or connects said antenna to an close stage in the event a "0" is

to be sent (open and close stage according to an impedance control signal 89, open is being interpreted as an indefinite impedance and open is being interpreted as short to the ground) (column 1, lines 56-65).

Ingram fails to disclose (a) the antenna has a high impedance in the event a "1" is to be sent a low impedance in the event a "0" is to be sent; (b) converter means for converting said data bit stream to bipolar states of "+1" and "-1;"; (c) a switch receiving said multiplication for connecting an antenna to at least one power splitter, wherein the at least one power splitter selectively connects at least one matched load to the antenna, and wherein the matched load is also connected to the ground.

With respect to (a) NPL discloses connects an antenna to an infinite impedance in the event a "1" is to be sent (maximum reflection), or connects said antenna to ground in the event a "0" is to be sent (maximum absorption) (page 31, column 3, lines 51-60).

It is desirable to connects an antenna to an infinite impedance in the event a "1" is to be sent, or connects said antenna to ground in the event a "0" is to be sent as taught by the NPL because it will maximize the signal to noise ratio. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the method of the NPL in the system of Ingram to improve the SNR ratio.

With respect to (b), Lewinter discloses a digital to analog convert that can convert a binary data stream to bipolar states of “+1s” and “-1s” (figure 2, column 2, lines 11-14).

It is desirable to convert a binary data stream to bipolar states of "+1s" and "-1s" because it reduces the potential for error (column 3, lines 9-11). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Lewinter in the system of Ingram and NPL to improve the accuracy of the system.

With respect to (c), in the same field of endeavor, Neagley discloses an impedance switch 14 that receives signal from voltage controlled squarewave oscillator and generates an impedance for open circuit or a matched load and connected to the antenna ground as shown in figure 1 (paragraph 0041), therefore, when the impedance switch is with an open circuit, the antenna reflect all of the received radio frequency signal (all energy re-radiated) and when the impedance is a matched load connected to the antenna ground (ANT GND), no energy is re-radiated from the antenna 10 because the received RF signal energy is split between the impedance of the antenna and the matched load, therefore, it provide a power splitting function; as a result, the impedance switch provide the function of selective connects an antenna to at least one power splitter, wherein the at least one power splitter selectively connects at least one matched load to the antenna, and wherein the matched load is also connected to the ground.

It is desirable to have a switch receiving said multiplication for connecting an antenna to at least one power splitter, wherein the at least one power splitter selectively connects at least one matched load to the antenna, and wherein the matched load is also connected to the ground because it provide a condition that no energy is re-

radiated from the antenna and thus improve the integrity of the transmitted signal and reduce noise. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Neagley in the apparatus of Ingram, NPL and Lewinter to improve the integrity of the transmitted signal and reduce noise.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SIU M. LEE whose telephone number is (571)270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Siu M Lee/
Examiner, Art Unit 2611
7/21/2010

/CHIEH M FAN/

Supervisory Patent Examiner, Art Unit 2611